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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Revision of Part 97 of the Rules)
Governing the Amateur Radio) RM-8218
Services Concerning High-Frequency)
Data Communications)

To: The Commission

REPLY COMMENTS OF
THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED

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SUMMARY

The American Radio Relay League, Incorporated (the League) submits its reply comments in continued support of its February 1, 1993 Petition for Rule Making (the petition). The petition seeks changes in Part 97 of the Commission's Rules governing the Amateur Radio Services (47 C.F.R. Section 97.1 et seq.) in accordance with an attached Appendix, to permit automatic control of RTTY and data communications in certain specified portions of the high-frequency (HF) amateur bands, under certain conditions.

The commenters have established the difficulty of any regulatory revision of operating patterns in the crowded HF bands. The comments are in agreement that there is a need for some provision for automatically controlled data stations at HF, and that such cannot be permitted without significant controls.

Whether the automatically controlled station is communicating with a locally controlled station, or with another automatically controlled station, there is a significant interference potential. To allow HF automatic control represents a departure from past practice, and detracts from the cooperative, real-time interference avoidance practices long a hallmark of amateur HF operation. It should be permitted cautiously. Creation of small subbands for

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To: The Commission

REPLY COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED

The American Radio Relay League, Incorporated (the League), the national non-profit association of amateur radio operators in the United States, by counsel and pursuant to Section 1.405(b) of the Commission's Rules, hereby respectfully submits its reply comments in continued support of its February 1, 1993 Petition for Rule Making (the petition). The petition sought changes in Part 97 of the Commission's Rules governing the Amateur Radio Services (47 C.F.R. Section 97.1 et seq.) in accordance with an attached Appendix, to permit automatic control of RTTY and data communications in certain specified portions of the high-frequency (HF) amateur bands, under certain conditions. For its reply to comments filed in response to the petition, the League states as follows:

1. There have been numerous comments filed in response to the League's petition. Taken together, these comments aptly illustrate the difficulty in making provision for automatic control of HF communications in the heavily occupied high frequency bands. On the one hand, a number of comments oppose the creation of band segments

within which automatically controlled data stations could operate, because such would include frequencies on which Baudot communications currently take place. Other commenters suggest that the creation of the proposed subbands for automatically controlled HF communications is ill-advised because it will lead to intermixing of automatically controlled, incompatible digital communications modes in the subbands, which will lead to interference. Still others suggest that certain "outdated" communications modes, such as Baudot, which do not include error correction or detection, should be prohibited, to make room for newer, more efficient digital codes. Finally, a number of commenters suggest that the subbands for automatically controlled operation proposed in the League's petition are acceptable, but are not alone a sufficient accommodation for automatic control operation in order to encourage the full development of digital message networks. They suggest that in addition, to permit significant expansion of data networks at HF, automatically controlled stations should be permitted to operate throughout the HF bands where data communications are permitted. To minimize interference to other stations, these commenters suggest that automatically controlled stations should be permitted to communicate only with stations operated under local or remote control, and that two automatically controlled data stations could not communicate with each other in the HF bands.

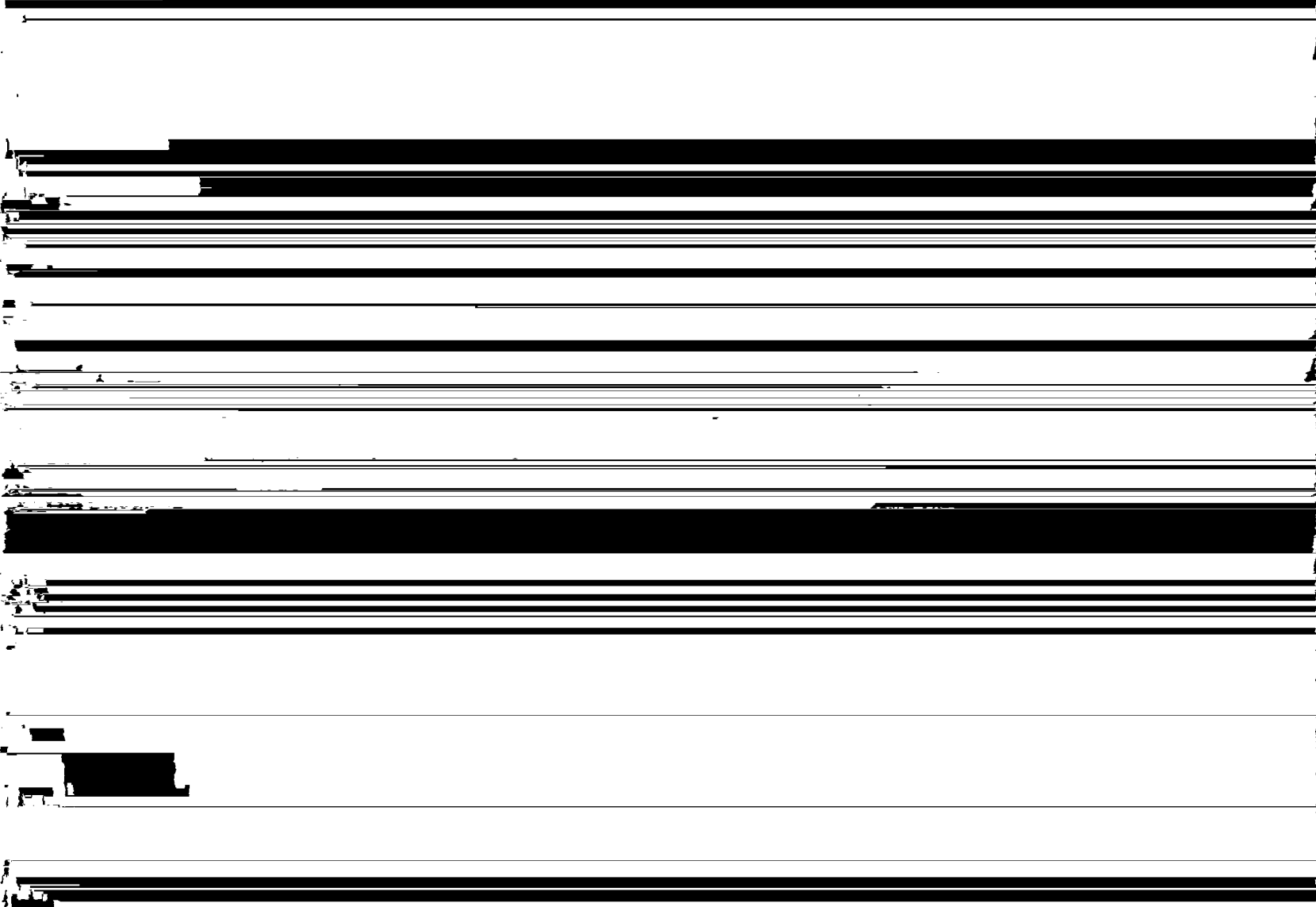
2. There is some merit in each of these concerns. One commenter stated that the best solution of all would be a

significant expansion of the HF amateur allocations, so that there need be no disruption of ongoing data traffic nets and other operation at HF from automatically controlled data stations. It is a significant challenge to the Amateur Service to create, in dynamic, shared frequency bands with continually variable propagation characteristics and worldwide propagation, provision for the use of automatically controlled data modes. Such operation inherently will result in increased interference potential. The League continues to believe that some configuration for HF automatic control is workable, however, and that a cooperative approach to interference avoidance and resolution, long a hallmark of the Amateur Service, is the likely response to authorization for automatic control by the amateur community. Though certain comments reflect a rather territorial approach to new HF data communications networks, these do not, in the League's opinion, reflect the ability of amateurs to cooperate and adapt to automatic control within the proposed subbands. Automatic control or not, at least until adaptive operating patterns emerge, there will be interference between incompatible data modes, no matter what configuration of automatic control rules are adopted.

3. It is necessary, however, in responding to these comments, to dispel a few myths reflected therein. First of all, certain commenters suggest that limiting automatic control to specific proposed subbands will stifle the development of non-packet data modes. The League is not suggesting by its petition that the proposal for automatically controlled HF data communications in

limited subbands constitutes the complete and ultimate regulatory approach to data networks at HF which incorporate automatic relay functions. The League is not necessarily opposed to provisions for data networking in addition to the creation of the proposed subbands. Some commenters suggest that data network operations, not all of which are compatible with each other, such as Baudot, Packet, Clover, Pactor, and Amtor, will be segregated in the proposed subbands and that the result will be a crowding of

4. The sole issue in this proceeding is to determine the best way to initially facilitate the future development of automatic data message forwarding systems in the HF bands, and to permit and develop the full use and benefit of constantly improving data communications without disrupting existing incompatible communications modes. The creation of the subbands proposed in the League's petition is a first step in that process, and, in the League's opinion, after several years of careful study, a justifiably conservative one. This petition does not propose that all data operation be located in the proposed subbands, but only that these stations operated under automatic control operate there



committee,² and its member survey, has actively considered the subject of automatic control in addition to subbands. The concept of automatically controlled data stations throughout the HF bands where data communications are permitted, even if limited to communication with stations under local control, was initially determined to create an unacceptable risk of interference to other types of communications in the shared frequencies³ ⁴. However,

² A copy of one such report, dated June 13, 1992, is attached to the comments of an entity identified as the American Digital Radio Society. The report was submitted to the League's Board of Directors and considered in July of 1992. A subsequent report, dated March 28, 1993, attached to supplemental comments of the same entity, was submitted to the League's Board of Directors and will be considered at an upcoming meeting of the Board in July of this year.

³ The problem was addressed in the League's petition at pages 18 and 19:

...(T)he incompatibility between certain data modes and other amateur operating modes would be quite apparent at HF, if automatically controlled stations in crowded bands were allowed to transmit without an interference avoidance mechanism. It is inevitable that any band segment in the HF amateur spectrum is (at least until differing operating patterns evolve) going to be shared among differing modes of operation. This is not a new condition on the HF bands, and the phenomenon has been accommodated for decades by cooperation among amateurs. The crowded conditions, however, and the inability of an automatically controlled station to "listen" prior to transmitting to prevent interference, dictate some element of control, by creation of specific subbands. If messages are to be passed by between amateur stations without any operator intervention and no operator present at either station, it will have to be done on frequencies where amateurs expect such operation. Otherwise, random automatic control of data stations at HF would undermine the degree of cooperation in interference avoidance that HF operation, by its nature, has always required. If automatic control operation is allowed only in subbands created by rule, the problem will still exist to a minor extent, until revised operating patterns emerge. However,

that issue was and is subject to further consideration, as noted below. When the League considered a petition to amend the rules to permit so-called "semi-automatic control," however, there were significant objections from those who operated packet communications at HF, including those who operated pursuant to the League's STA, to the effect that users of packet would be disenfranchised by a proposal which did not account for certain automatically controlled stations to communicate directly with other automatically controlled stations for message relay purposes. The League asked its committee on digital communications to study the matter of so-called "semi-automatic" operation further and to

by designating small subbands for automatically controlled data operation, there will be advance notice to amateurs operating in that segment that automatically controlled stations may commence transmissions. From the point of view of other stations operating in that subband, operators would have advance notice of the possibility of interference to communications using an incompatible transmission mode. Data communications outside those subbands would be limited to local control, thus providing the necessary degree of manual interference avoidance.

⁴ One conclusion drawn from the League-sponsored STA involving HF packet operation was that packet operation is not compatible with other modes, and requires separate frequencies. One reason for this is that carrier sense is not adequate to protect against interfering with other modes on HF owing to transmission impairments, hidden station effects, and the like. This factor

submit a report to the League's Board of Directors for consideration at its meeting in July of this year. The committee has dutifully and in good faith done its work and the League's review of expanded HF automatic control operation is ongoing.

6. It is readily apparent, however, that the League's petition for automatic control subbands for data communications at HF, and "semi-automatic control" of HF data represent two separate, distinct concepts which need not be addressed together. Both are means of expanding and facilitating data message networks at HF which include automatically controlled components, thus to realize the potential of these systems to enhance emergency and public service message relay. Neither is permitted now.⁵ There, however, the similarities end. Everyone would seem to agree that unrestricted automatically controlled operation at HF is

⁵ There seems to be a misconception among certain of the commenters that what has been referred to as "semi-automatic control" is in some way presently permitted at HF. Such is clearly not the case. Automatic control is defined as the use of devices and procedures for control of a station when it is transmitting so that compliance with FCC rules is achieved without the control operator being present at the control point. 47 C.F.R. §97.3(a)(5). Automatic control is permitted for RTTY and data stations at 6 meters and above, and as otherwise provided in the rules. 47 C.F.R. §97.109(d). There is no provision in the rules at present for automatic control at HF. That being the case, each station transmitting at HF frequencies at present must have a control operator when transmitting. 47 C.F.R. §97.7. The control operator must ensure the immediate proper operation of the station, regardless of the type of control. 47 C.F.R. §97.5(a). And, the control operator must be designated by the licensee. It is the licensee, unless the station records indicate differently. 47 C.F.R. §97.103(b). It is not possible to suggest that anyone who accesses a digital BBS is the control operator of that BBS, because merely interrogating a message forwarding system is not equivalent to ensuring the immediate proper control of it.

undesirable. The League, however, believes that some automatic control at HF, including provision for automatically controlled stations to intercommunicate, is beneficial. The subband concept is the only means that has appeared to date which would accommodate the benefit of automatically controlled operation while minimizing interference potential. Whether in addition to this it is

was the specific choice of frequencies to be included in those
subbands. The situation, as discussed in the instant petition, is

control of data communications that was not in accordance with the extant IARU band plan, and the proposed subbands contained in the petition are a significant improvement over those previously selected in RM-7248.

9. In summary, the commenters have by their comments established the difficulty of any regulatory revision of operating patterns in the crowded HF bands. There is a need for some provision for automatically controlled data stations at HF, but such cannot be permitted without significant controls. Whether the automatically controlled station is communicating with a locally controlled station, or with another automatically controlled station, there is a significant interference potential. To allow HF automatic control represents a departure from past practice, and detracts from the cooperative, real-time interference avoidance practices long a hallmark of amateur HF operation. It should be permitted cautiously. Creation of small subbands for automatically controlled stations will prevent interference from such stations elsewhere in the HF bands, and thus minimize interference potential. Amateurs using data modes can continue to do so anywhere in the HF bands that data operation is permitted. Only the automatically controlled stations would be limited to the proposed subbands. Those subbands were chosen after coordination with representatives of 27 amateur radio societies in Region 2, and the plan represents a workable plan for automatically controlled data operation. The proposed subband plan is not undermined because it does not at the same time propose to permit automatically

controlled stations to communicate with locally controlled stations outside the subbands. The instant petition is a properly conservative first step in facilitating digital message forwarding systems at HF. If there is a need to expand such operation at a later date, after experience with the variety of automatic control and interference avoidance within the subbands, that can be addressed at a later date.

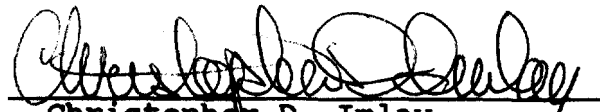
Therefore, the foregoing considered, the American Radio Relay League, Incorporated respectfully requests that the Commission issue a notice of proposed rule making looking toward amendment of the Amateur Radio Service Rules to permit automatic control of data communications in the amateur high frequency allocations under certain circumstances in specified subbands.

Respectfully submitted,

THE AMERICAN RADIO RELAY
LEAGUE, INCORPORATED

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By


Christopher D. Imlay
Its Counsel

BOOTH, FRERET & IMLAY

CERTIFICATE OF SERVICE

I, Margaret A. Ford, Office Manager of the law firm of Booth, Freret & Imlay, do hereby certify that a copy of the Reply Comments of the American Radio Relay League, Inc. were mailed, via U. S. Mail, postage prepaid, this 1st day of June, 1993, to the offices of:

**The American Digital Radio Society
c/o Warren J. Sinsheimer
30 Rockefeller Plaza
New York, NY 10112**


Margaret A. Ford